

COMPATIBILITY DETERMINATION
for
Environmental Education and Interpretation
on
San Pablo Bay National Wildlife Refuge

Uses: Environmental Education and Interpretation

Refuge Name: San Pablo Bay National Wildlife Refuge, Sonoma and Solano Counties, California

Establishing and Acquisition Authority(ies):

Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715d)

Act Authorizing the Transfer of Certain Real Property for Wildlife (16 U.S. C. 667b)

Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544, Stat 884)

Refuge Purpose(s):

San Pablo Bay NWR purposes include:

“... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.”
16 U.S.C. 715d (Migratory Bird Conservation Act),

“... particular value in carrying out the national migratory bird management program.” 16 U.S.C. 667b (An Act Authorizing the Transfer of Certain Real Property for Wildlife, or other purposes), and

“... to conserve (A) fish or wildlife which are listed as endangered species or threatened species... or (B) plants...” 16 U.S.C. 1534 (Endangered Species Act of 1973).

National Wildlife Refuge System Mission:

The mission of the National Wildlife Refuge System is “to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.” (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd - 668ee.])

Description of Use(s):

Environmental education and interpretation are two of six priority public uses (the other uses are hunting, fishing, wildlife observation, and photography) promoted in the National Wildlife Refuge System Improvement Act of 1997.

The current program is conducted through a partnership organization. The partner organization arranges transportation and scheduling of school age children to visit the refuge for greenhouse and planting activities on refuge property. The program is directed through the biological program since there is no visitor services staff at the refuge. Visitor Services staff from the San Francisco Bay NWR Complex offices in Fremont facilitate events and activities on the refuge

throughout the fall. These events include participation in festivals and special events for the general public at the refuge office.

With additional staff, the Refuge will expand environmental education and interpretation opportunities for schools, families and the general public. Anticipated public use could include as many as 5,000 additional visitors annually during the first few years with increasing visitor use expected annually thereafter.

The Refuge staff would continue attending educational fairs and festivals (e.g., Bay Area Environmental Education Resource Fair, Flyway Festival) to promote environmental education, but would discontinue in-class programs. Working with partners, Refuge staff would continue their focus instead on on-site activities. Some activities would be targeted towards adults such as docent-led interpretive walks once per month and docent-led kayak tours twice a year. Other programs would be targeted towards adults and families including a garden education and volunteer program based from the greenhouse located at the headquarters. This program would also be conducted in the field via habitat restoration activities on the Refuge.

In-class programs will be replaced by a refuge-led program that brings students out to the Refuge where they can more closely connect with wildlife and habitat resources. Once additional lands are acquired by the Refuge, in-class school programs will be replaced by on-site activities. Environmental education and interpretation activities will take place throughout the refuge. Programs would include arranging activities at Refuge sites to develop an awareness and concern for Refuge's resource management issues including preservation of significant wildlife habitat, threatened and endangered species and migratory birds. Elements of the program would include:

- Developing a refuge site for staging field programs;
- Constructing a trail leading from the plant nursery to field sites; and
- Building interpretive panels, kiosks, and materials.

Lastly, self-guided trails and interpretive panels would be strategically located to describe the mission of the Refuge, the tidal restoration process, importance of fish and wildlife, their habitats, and the need to protect them. Seasonal use and diurnal tide use by migratory wildlife would be described. This information would give the visiting public the opportunity to view this rare and unique habitat and learn about the resources without adversely impacting the marsh or wildlife.

Availability of Resources:

Through partnering, there are sufficient funds available from the Refuge budget to accommodate the current environmental education and interpretation program at the Refuge. The major portion of funds needed to support this use are salaries for staff to promote environmental education at festivals and in-class school programs. No on-site environmental education and interpretation is currently conducted on the Refuge.

In order to implement on site environmental education and interpretation the acquisition of new properties and construction of trails, interpretive panels, and kiosks is necessary at some units. Additional Service funding will be necessary to construct trails, interpretive panels, kiosks, and

other associated infrastructure. An approximate cost of \$5,000 per site would be adequate to meet these needs. This infrastructure and its associated costs are outlined in the Wildlife Observation and Photography compatibility determinations are the same as those that are needed for Environmental Education and Interpretation. Although existing staff from throughout the San Francisco Bay NWR Complex already provide some interpretive walks and environmental education activities on other areas of the refuge, expanding these efforts to become regular events throughout the Refuge will further involve our partners and volunteer force.

Anticipated Impacts of the Use(s):

Impacts associated with environmental education and interpretation would be limited to areas on and adjacent to designated trails. Most programs would also be supervised by Refuge staff or partners. Human activities along wildlife observation trails can reduce foraging or even cause waterbirds to avoid foraging habitats adjacent to the trails (Klein 1993), especially when it involves close proximity and/or fast-moving human activities (Burger 1981). However, more recently, Lafferty (2001) found that joggers caused fewer disturbances to wintering snowy plovers than walkers, and that dogs and horses caused more disturbance than either human activity. Activities along trails tend to displace wildlife and can cause localized reduction in species richness and abundance (Riffell et al. 1996). In addition, nest predation tends to increase near more frequently utilized areas for songbirds (Miller et al. 1998), raptors (Glinski 1976), colonial nesting species (Buckley and Buckley 1978), and waterfowl (Boyle and Samson 1985).

Federally-listed species that occur on the Refuge include California clapper rail, salt marsh harvest mouse, delta smelt, and soft bird's beak. No significant impacts are anticipated to these wetland and open bay species from environmental education and interpretation as visitors will be confined to established trails and monitored by staff.

Public Review and Comment:

Notice was provided for public review and comment to this Compatibility Determination on May 1, 2009 or a period of 30 days. Notice was provided through local newspapers and emails to partners. In addition, notices were posted at the Refuge Headquarters at 2100 Highway 37, Petaluma, California.

Further review of visitor opportunities on the Refuge will be evaluated during the Comprehensive Conservation Planning (CCP) currently in progress. All uses are being evaluated and open for discussion at public meetings.

Determination (Check One Below):

_____ Use is Not Compatible
_____ X _____ Use is Compatible with Stipulations

Stipulations Necessary to Ensure Compatibility:

Environmental education and interpretation activities would be allowed only between sunrise and sunset, unless they are part of a refuge-led activity. Public access would be restricted to

established trails and other developed facilities. Regulations would be enforced to insure public safety and to prevent resource impacts. Docent-led programs would be offered as the volunteer program is expanded. Environmental education and outreach would remain a key component and priority for the Refuge. The Refuge and partners will work closely with visiting school groups either prior to or during visits to explain designated learning sites and offer guidance on appropriate lessons and group activities to ensure compatibility. Educational and outreach programs as well as an information kiosk and interpretive panels would be used to provide wildlife viewing tips and inform users about ethics and responsibilities of wildlife viewing.

Justification:

After assessing the potential impacts from the uses proposed for the Refuge it was determined that allowing these uses would not materially interfere with or detract from the purposes for which the refuge was created or the mission of the National Wildlife Refuge System. Environmental Education and Interpretation would allow school groups and the visiting public to enjoy, experience, and learn about native fish, wildlife, and plants in these unique and rare habitats of the northern San Francisco Bay area. Environmental education and interpretation promotes awareness and knowledge of fish and wildlife resources and would be balanced to ensure that wildlife species receive priority consideration when evaluating public opportunities to participate in these activities.

Mandatory Reevaluation Date (provide year):

 X Mandatory 15-year Reevaluation Date (for priority public uses)

 Mandatory 10-year Reevaluation Date (for all uses other than priority public uses)

Literature Cited:

- Boyle, S. A. and F. B. Samson. 1985. Effects of nonconsumptive recreation on wildlife: a review. *Wildl. Soc. Bull.* 13:110-116.
- Buckley, P. A. and F. G. Buckley. 1976. Guidelines for protection and management of colonially nesting waterbirds. North Atlantic Regional Office, National Park Service, Boston, MA. 52pp.
- Burger, J. 1981. The effect of human activity on birds at a coastal bay. *Biol. Cons.* 21:231-241.
- Glinski, R.L. 1976. Birdwatching Etiquette: the need for a developing philosophy. *Am. Bird* 30(3):655-657.
- Klein, M. L. 1993. Waterbird behavioral responses to human disturbances. *Wildl. Soc. Bull.* 21:31-39.
- Lafferty, K. D. 2001. Disturbance to wintering western snowy plovers. *Biol. Cons.* 101:315-325.

Miller, S. G., R. L. Knight, and C. K. Miller. 1998. Influence of recreational trails on breeding bird communities. *Ecological Applic.* 8:162-169.

Riffell, S. K., K. J. Gutzwiller, and S. H. Anderson. 1996. Does repeated human intrusion cause cumulative declines in avian richness and abundance? *Ecol. Appli.* 6(2): 492-505.

Refuge Determination

Prepared by:	_____	_____
	(Signature)	(Date)
Project Leader		
Approval:	_____	_____
	(Signature)	(Date)
<u>Concurrence</u>		
Refuge Supervisor	_____	_____
	(Signature)	(Date)
Assistant Regional		
Director, Refuges		
Pacific Southwest		
Region	_____	_____
	(Signature)	(Date)